

### **REMARKS**

This Amendment and Response is in reply to the Office Action dated April 28, 2009. Therefore, the time period for reply extends up to and includes July 28, 2009. Applicants wish to thank the Examiner for his careful review and consideration of this application.

Applicants have amended claims 1-3, 6, 8, 11, 22, 23 and added new claims 24 and 25 above. Claims 4-5, 7, 9-10, and 12-21 were previously canceled. Therefore, claims 1-3, 6, 8, 11 and 22-25 are currently pending in this application. No new matter has been added, with support for the amendments and new claims being found throughout the specification. For example, see the originally filed claims and the description of embodiments 1-4 found on pages 8-20 of the specification.

#### **35 U.S.C. § 103(a)**

To further prosecution and without acquiescing to the rejections, Applicants have amended claims 1-3, 6, 8, 11, 22 and 23 to further clarify the invention.

Biaxially oriented PET materials cannot be bonded to each other by ultra-sonic welding because biaxial stretching changes the molecular structure of the PET materials. This change in structure reduces the bonding strength and results in the PET becoming fragile and brittle when ultra-sonic welding is used.

The presently claimed invention utilizes a nonobvious apparatus and method for application of insert injection molding for producing PET bottles. In contrast to the many cited examples of extrusion blow molding, which blow molds in one step, this novel and nonobvious method comprises a multi-step blowing process which overcomes the inability of biaxially stretched PET to be bonded by compressing with heating. Further, the presently claimed invention makes use of the multi-step blowing process to embed the bonded portion of the handle into the PET container.

#### **Claims 1, 6, 22 and 23**

At pages 2-8 of the Action, claims 1 and 6 were rejected under 35 U.S.C. 103(a) over Shinichi et al. (JP 8323845) in view of Uhlig (US 3,740,181) and Hagano et al. (US 2002/0125254). Or in the alternative, claims 1 and 6 were rejected under 35 U.S.C. 103(a) over

Uhlig in view of Mojonnier et al. (US 3,366,290) and Hagano et al. Applicants respectfully traverse these rejections.

At pages 16 and 17, claim 22 was rejected under 35 U.S.C. 103(a) over Shinichi or Mojonnier et al. in view of Hagano et al. At pages 17-19, claim 23 was rejected under 35 U.S.C. 103(a) over Shinichi et al. in view of Hagano et al. Or in the alternative, claim 23 was rejected under 35 U.S.C. 103(a) over Mojonnier et al. in view of Hagano et al. and Matsui (US 5,874,141). Applicants respectfully traverse these rejections.

*Extrusion vs. Injection* – As an initial matter, Uhlig (Col. 5:29-34) and Hagano ([0087]) relate to an extrusion blow molding process. For example, the handles of Uhlig are formed by compressing the handle portion with the mold and blowing a compressed air into the parison. Then the handle hole is cut from the compressed and bonded area. Importantly, this extrusion blow molding process is not compatible with PET materials due to the low melt strength of PET. The low melt strength of PET results in an unfavorable draw down phenomenon on the parison when attempting to use extrusion blow molding.

In the presently claimed invention, low melt strength PET bottles are made by injection blow molding. Injection blow molding comprises injecting a parison or a preform stick into an injection mold and blowing the parison in a blow mold. Extrusion and injection blow molding are different processes and the teachings of one do not necessarily correlate to the other. For example, the extrusion blow molding process of Uhlig and Hagano can not make low melt PET bottles of the present invention. One nonobvious embodiment of the present invention is an apparatus and method for making a PET bottle that incorporates a final blowing process with a handle forming portion penetrating the body of the PET container through the cut-off aperture of the handle section. For example, see steps (d) and (e) of claim 6, steps (b) and (c) of claim 23 and the newly added section of claim 1. This nonobvious embodiment follows the preform blowing, compressing, cutting and bonding step, resulting in a PET container with integrated and penetrated handle that is comfortable to grip.

*Mojonnier* – Similar to Uhlig and Hagano, Mojonnier does not relate to injection blow molding. Mojonnier discloses a container and handle formed in two half sections by known sheet forming techniques (Col. 4:35-40). The two half sections are then joined together by heat sealing along the mating outturned flanges resulting in a container with an L-shaped handle that

is sealed from the container. In sharp contrast, the present invention uses injection blow molding to form an integrated and continuous volume handle. Once PET has been oriented biaxially by the blowing process it is not possible to bond the two halves by just compressing and/or heating. Thus, like Uhlig and Hagano, the techniques disclosed in Mojonnier are not suitable for making a PET bottle.

*Shinichi* – Shinichi discloses injection blow molding where the processes of compressing, cutting and bonding are performed separately. Inherent in the bottle of Shinichi is a handle where the bonded portion of the handle section protrudes from the inner round of the handle. This undesirable feature results in an uncomfortable handle. By direct contrast, bottles of the present invention have handles without protruding parts. For example, see step (c) of claim 23. This is accomplished by incorporating a final blowing process with a handle forming portion penetrating the body of the container through the cut-off aperture of the handle section after cutting and bonding the inner round of the handle. For example, see steps (d) and (e) of claim 6, steps (b) and (c) of claim 23 and the newly added section of claim 1.

The Action alleges it would have been obvious to use the preliminary blow molding step of Uhlig to create the container disclosed by Shinichi, cut the compressed portion of the container taught by Shinichi with the punch disclosed by Uhlig, and then bond the cut-off portion with the mold taught Hagano. Applicants respectfully disagree for at least the following reasons.

First, the preliminary blow molding step of Uhlig and the mold taught by Hagano are not applicable to the present invention because extrusion blow molding is not suitable for PET. Second, the container of Shinichi has a handle with a protruding inner section. By contrast, the presently claimed invention utilizes injection blow molding to produce a PET bottle with a handle forming portion configured to penetrate the body of the bottle through the cut-off aperture of the handle section.

In the alternative, the Action alleges it would have been obvious to make the handle of Uhlig more comfortable by adding flanges disclosed by Mojonnier to the handle portion and then bonding them with the injection mold disclosed by Hagano. Applicants respectfully disagree for at least the following reason.

Neither Uhlig, Mojonniere nor Hagano disclose and/or teach (alone or in combination) an injection blow molding process suitable for PET. In fact, they all disclose techniques that are unsuitable for PET based on PET's low melt properties.

In view of the foregoing, Applicants submit the Action has failed to establish a *prima facie* case of obviousness and respectfully request the above rejections be withdrawn.

#### Claims 3 and 8

At pages 13-15 of the Action, claims 3 and 8 were rejected under 35 U.S.C. 103(a) over the previous combination of Shinichi et al. in view of Uhlig and Hagano et al. as applied to claims 1 and 6 above, and further in view of Fischer et al. (US 4,123,217). Or in the alternative, claims 3 and 8 were rejected under 35 U.S.C. 103(a) over the previous combination of Uhlig in view of Mojonniere et al. and Hagano et al. as applied to claims 1 and 6 above, and further in view of Fischer et al. Applicants respectfully traverse these rejections.

Similar to Uhlig and Hagano, Fischer discloses a plastic container with a handle that is made in a single blowing process and finished by cutting out the bonded area of the handle (Col. 2:46-55). In direct contrast, the presently claimed invention comprises a nonobvious apparatus and method that incorporates a preform blowing process and a final blowing process. For example, see steps (a) and (e) of claim 6. The final blowing process utilizes a bottle-shaped blow mold having a handle forming portion penetrating the body of the PET container through the cut-off aperture of the handle section. For example, see steps (d) and (e) of claim 6. One benefit of the presently claimed method and apparatus is the production of PET that has handles without protruding parts.

In view of the above, Shinichi, Uhlig, Hagano, Mojonniere and Fischer fail to disclose and/or teach Applicants' recited invention (either alone or in combination). Therefore, Applicants respectfully submit the Action has failed to establish a *prima facie* case of obviousness and respectfully request the rejections be withdrawn.

#### Claims 2 and 11

At pages 8-13 of the Action, claims 2 and 11 were rejected under 35 U.S.C. 103(a) over the previous combination of Shinichi et al. in view of Uhlig and Hagano et al. as applied to

claims 1 and 6 above, and further in view of Hurst (US 3,499,071) or Martin et al. (US 4,320,789). Or in the alternative, claims 2 and 11 were rejected under 35 U.S.C. 103(a) over the previous combination of Uhlig in view of Mojonnier et al. and Hagano et al. as applied to claims 1 and 6 above, and further in view of Hurst or Martin et al. Applicants respectfully traverse these rejections.

The Action alleges Hurst discloses a handle forming portion of a blow mold which is configured to penetrate the body of the bottle upon compressing both sides of the bottle and that it would have been obvious to blow mold the formed containers in a mold which penetrates into the body of the container at the handle area. The Action points to Figure 3, mold member 20 of Hurst. Applicants disagree because member 20 of Hurst is used to compress the handle section area of the bottle in order to bond the two halves of the parison (Col. 5:29-31). This is dissimilar to the presently claimed invention because the presently claimed handle forming portion penetrates the body of the bottle through the cut off aperture of the handle section during the blowing step to allow the handle to form around the handle forming portion and embed the bonded portion of the PET bottle. For example, amended claim 1 recites "a bottle-shaped blow mold having a handle forming portion configured to penetrate the body of the bottle through the cut-off aperture of the handle section"

The Action alleges Martin discloses blow molding a container so that its seam is protected inside a recess in the container walls and that it would have been obvious to incorporate a blow mold that extends into the body of the bottle to create an indentation around the seam. Applicants disagree for at least the following reasons.

First, Martin discloses extrusion blow molding processes where blowing and compressing are performed in one process. As discussed above, extrusion blow molding is not applicable to PET container due to the low melt properties of PET. As a result, the presently claimed invention utilizes a multi-step injection mold blowing process. For example, see steps (a) and (e) of claim 6. Second, it appears the container of Martin may be ejected from the mold without incurring the under cut phenomenon. Further, the seams in Martin are designed to have flexibility and the ability to absorb external shock. By contrast, PET is rigid material that is not able to overcome the under cut phenomenon.

Finally, Martin blows the container into a shape in order to protect the weak seam by concealing it. The presently claimed invention comprises utilizes a blowing step following bonding to provide a handle with improved grip properties.

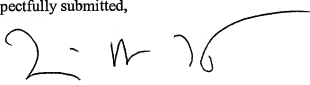
In view of the above, Shinichi, Uhlig, Hagano, Mojonnier, Hurst and Martin fail to disclose and/or teach Applicants' recited invention (either alone or in combination). Therefore, Applicants respectfully submit the Action has failed to establish a *prima facie* case of obviousness and respectfully request the above rejections be withdrawn.

Summary

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

28 July 2009  
Date

  
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